Deafness and Hearing Disorders

Definition:

There are four types of hearing loss (conductive, sensorineural, central and mixed) each of which can result in different problems in hearing and different possibilities for medical and nonmedical intervention to improve hearing and communication. Sensorineural damage is the largest, single form of hearing loss affecting 17 million Americans. There are different levels of hearing loss; some individuals have a profound hearing loss while others may experience a mild loss.

Incidence:

More than 28 million Americans have a hearing loss; 80% of those have irreversible and permanent hearing damage. At least 1 million children are deaf or have a communication problem. Hearing loss affects individuals of all ages and may occur at any time; one out of every 22 infants has hearing problems. The average age of diagnosis of hearing loss is close to age 3.

· Activities.

- 1.) Elementary School Age
 - a.) Native American Signing
 - b.) Vibrations
 - c.) Your Name In Sign
- 2.) Middle School Age
 - a.) Learning To Read
 - b.) What Would You Do If?
 - c.) What Is It Like Being Deaf?
- 3.) High School Age
 - a.) Experiencing A Hearing Loss
 - b.) Ear Plugs/Guest Speaker Presentation
- Fact Sheet on Deafness and Hearing Loss
- Statistics on Deafness and Hearing Disorders
- Attitudinal Quiz: Is It True?
- Bibliography of Children's Literature & Audio Visual Materials
- Community Resource Numbers

**Guest Speaker Presentation Idea: Maryland School for the Deaf Ruth Howell and/or Teaching Staff 301-662-4159

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ELEMENTARY SCHOOL

Native American Signing

Purpose: To familiarize children with alternative forms of communication.

Materials: Crayons, paper

Activity:

ALC: N

Discuss how Native Americans used "signs" to communicate with others who didn't speak the same language or who were far away. These "signs" included smoke signals, twig patterns, hand signs, paint and masks, clothing, and artifacts such as peace pipes, war bonnets, and pictures. Children can draw pictures of each of these signs. List on the board signs used by other groups, such as football players) baseball players, music conductors, police officers, etc.

ELEMENTARY SCHOOL

Vibrations

Purpose: To introduce the concept that sounds are created by vibration and that people with hearing loss sense vibrations.

Materials: Tuning fork, bowl of water, sand on flat metal lid or drum head

Activity:

The purpose of this activity is to help children discover (a) that sounds are produced by vibrations and (b) that people who are deaf perceive vibrations. Strike a tuning fork and let students take turns feeling the vibrating fork. Strike it again and place it in a bowl of water to observe the sound waves. Touch a tuning fork that has been struck to the sand on a flat surface or put the sand on a drum head and hit it. Again observe the formation of the sound waves. Students can also put the tuning fork to their throats and hum; see the fork vibrate. Discuss what people with hearing loss might experience who can't hear sounds but can feel strong vibrations which give them information about the location of things, as well as rhythm.

ELEMENTARY SCHOOL

Your Name In Sign

Purpose: To introduce the use of sign language.

Materials: Copy of name, pictures of signs, copy of fingerspelling alphabet

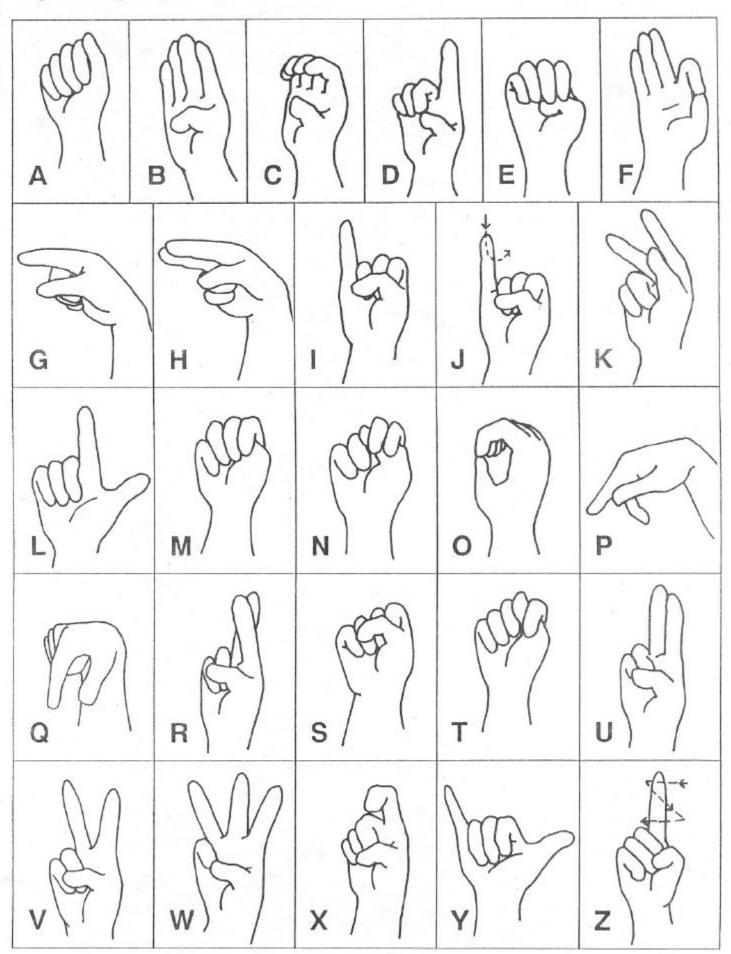
Activity:

People who sign decide on a name sign for themselves. After children learn the alphabet in fingerspelling, they can make up their own name signs. Name signs are made by making the first letter of your name and placing it somewhere on your body where people can see it easily. Boys can put their letters around the forehead and girls can put theirs on their chin. If there is more than one person with the same initial, you can put the sign on the elbow, chest, shoulder, hair, ear, etc. Have children practice with each other.

What is your name?

My name is _____.

Sign Language Alphabet



MIDDLE SCHOOL

Learning To Read

Purpose: To help students understand how challenging learning to read is for someone with a hearing impairment.

Materials: Poster board, tape

Activity:

Find a poem that is not familiar to the children. Print one or two lines on strips of poster board so that you can tape them up, strip by strip, later on. On other pieces of poster board, draw pictures of the main activities of the poem. "Read" the poem to your class without using your voice. Ask for some ideas on what the poem is about. (You may be surprised at some of your students' abilities to lip read.) After you've gotten all the ideas, put up the first drawing of the beginning of the poem. "Read" the poem again. Any more ideas? Put up the next picture and continue this process until all 3 or 4 pictures are up and the students get the gist of the poem. Then put up the strips with the words next to the corresponding pictures. Read the poem out loud.

Explain that for young children with hearing loss, the teacher might begin with one picture such as a cat, and then print the word next to it. (This experiment was made a little bit harder because the children already know how to read.)

MIDDLE SCHOOL

What Would You Do If ...

Purpose: To encourage students to be empathetic of others regardless of differences.

Materials: None

Activity:

Discuss with the class the following critical incident and brainstorm responses.

You have a hall pass to do an errand for your teacher and you come across the following scene: A new substitute teacher is yelling at a boy asking him why he is in the hall, where he is going, why he doesn't have a hall pass. The boy stands confused, not answering. The teacher is getting angry and asking him why he doesn't answer. You recognize the boy as a member of a class for children with hearing loss.

What would you do? How does the boy feel? Why is the teacher angry? Would she feel differently if she knew the boy had a hearing impairment? Why?

MIDDLE SCHOOL

What Is It Like Being Deaf?

Purpose: To help students gain an understanding of what it might be like to have a hearing loss.

Materials: Cotton balls or ear plugs

Activity:

Have some members of the class put cotton balls or ear plugs in their ears for a block of time during the day. Conduct the class as usual--including perhaps a spelling test or a question and answer period where children are dependent on auditory clues. Talk softly. Afterwards talk as a group about how it feels to have some hearing loss. How did the children deal with it? Were they comfortable asking questions to get information they missed? Did they ask other people to speak louder? You can contact an audiologist in your area and ask if he/she would come to visit the class and bring some of the testing equipment used. The audiologist can talk about different degrees of decibel loss and demonstrate how hearing aides help. They are as follows:

Central/Northeast

Kathleen Mohr

410-887-5382 at White Oak School

Southeast

Ellen Bookstein

410-887-7267 at Battle Monument

Northwest/Southwest

Eloise Brown

410-887-1107 at Chatsworth

HIGH SCHOOL

Experiencing a Hearing Loss

Purpose: To help students feel what it might be like to have a hearing loss that affects your classroom participation.

Materials: "Getting Through" -- an audio cassette obtained from: Starkey, 6700 Washington Avenue, Eden Prairie, MN 55334; prepared sheets, columns A,B,C across, numbers 1-10 down.

Activity:

At 5 minutes and 15 seconds into the tape, you hear 5 sentences repeated under several different situations. At 6 minutes and 15 seconds, the children are given an "unfair hearing test." The test goes quickly, so stop the tape player after each word. Ten words are repeated 3 different times as they would sound; first, to someone hard of hearing; second, to someone with a hearing aide; and third, to someone with normal hearing. The children should write each word as they hear it. Talk with the children about how they would feel if everything sounded like the first list. How would they like other children to relate to them if they couldn't hear well or communicate normally?

HIGH SCHOOL

Ear Plugs/Guest Speaker Presentation

Purpose: To develop awareness and understanding of hearing loss and the use of testing to determine the degree of loss and how hearing aides might help.

Materials: Cotton balls or ear plugs

Activity:

Have some members of the class put cotton balls or ear plugs in their ears for a block of time during the day. Conduct the class as usual-including perhaps a spelling test or a question and answer period where children are dependent on auditory clues. Talk softly. Afterwards talk as a group about how it feels to have some hearing loss. How did the children deal with it? Were they comfortable asking questions to get information they missed? Did they ask other people to speak louder? You can contact an audiologist at a speech and hearing clinic and ask if he/she would come to visit the class and bring some of the testing equipment used. The audiologist can talk about different degrees of decibel loss and demonstrate how hearing aides help.

National Information Center for Children and Youth with Disabilities



P.O. Box 1492 Washington, D.C. 20013-1492

E-Mail: nichcy@aed.org URL: http://www.nichcy.org 1-800-695-0285 (Voice/TTY)

Deafness and Hearing Loss

♦ Definition ♦

The Individuals with Disabilities Education Act (IDEA), formerly the Education of the Handicapped Act (P.L. 94-142), includes "hearing impairment" and "deafness" as two of the categories under which children with disabilities may be eligible for special education and related service programming. While the term "hearing impairment" is often used generically to describe a wide range of hearing losses, including deafness, the regulations for IDEA define hearing loss and deafness separately.

Hearing impairment is defined by IDEA as "an impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance."

Deafness is defined as "a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification."

Thus, deafness may be viewed as a condition that prevents an individual from receiving sound in all or most of its forms. In contrast, a child with a hearing loss can generally respond to auditory stimuli, including speech.

♦ Incidence ♦

Hearing loss and deafness affect individuals of all ages and may occur at any time from infancy through old age. The U.S. Department of Education (1998) reports that during the 1996-97 school year, 68,766 students aged 6 to 21 (or 1.3% of all students with disabilities) received special education services under the category of "hearing impairment." However, the number of children with hearing loss and deafness is undoubtedly higher, since many of these students may have other disabilities as well and may be served under other categories.

♦ Characteristics ♦

It is useful to know that sound is measured by its loudness or intensity (measured in units called decibels, dB) and its frequency or pitch (measured in units called hertz, Hz). Impairments in hearing can occur in either or both areas, and may exist in only one ear or in both ears. Hearing loss is generally described as slight, mild, moderate, severe, or profound, depending upon how well a person can hear the intensities or frequencies most greatly associated with speech. Generally, only children whose hearing loss is

greater than 90 decibels (dB) are considered deaf for the purposes of educational placement.

There are four types of hearing loss. Conductive hearing losses are caused by diseases or obstructions in the outer or middle ear (the conduction pathways for sound to reach the inner ear). Conductive hearing losses usually affect all frequencies of hearing evenly and do not result in severe losses. A person with a conductive hearing loss usually is able to use a hearing aid well or can be helped medically or surgically.

Sensorineural hearing losses result from damage to the delicate sensory hair cells of the inner ear or the nerves which supply it. These hearing losses can range from mild to profound. They often affect the person's ability to hear certain frequencies more than others. Thus, even with amplification to increase the sound level, a person with a sensorineural hearing loss may perceive distorted sounds, sometimes making the successful use of a hearing aid impossible.

A mixed hearing loss refers to a combination of conductive and sensorineural loss and means that a problem occurs in both the outer or middle and the inner ear. A central hearing loss results from damage or impairment to the nerves or nuclei of the central nervous system, either in the pathways to the brain or in the brain itself.

♦ Educational Implications ♦

Hearing loss or deafness does not affect a person's intellectual capacity or ability to learn. However, children who are either hard of hearing or deaf generally require some form of special education services in order to receive an adequate education. Such services may include:

- regular speech, language, and auditory training from a specialist;
- amplification systems;
- services of an interpreter for those students who use manual communication;
- favorable seating in the class to facilitate speechreading:
- · captioned films/videos;
- assistance of a notetaker, who takes notes for the student with a hearing loss, so that the student can fully attend to instruction;
- instruction for the teacher and peers in alternate communication methods, such as sign language; and
- · counseling.

Deafness and Hearing Loss

Children who are hard of hearing will find it much more difficult than children who have normal hearing to learn vocabulary, grammar, word order, idiomatic expressions, and other aspects of verbal communication. For children who are deaf or have severe hearing losses, early, consistent, and conscious use of visible communication modes (such as sign language, fingerspelling, and Cued Speech) and/or amplification and aural/oral training can help reduce this language delay. By age four or five, most children who are deaf are enrolled in school on a full-day basis and do special work on communication and language development. It is important for teachers and audiologists to work together to teach the child to use his or her residual hearing to the maximum extent possible, even if the preferred means of communication is manual. Since the great majority of deaf children (over 90%) are born to hearing parents, programs should provide instruction for parents on implications of deafness within the family.

People with hearing loss use oral or manual means of communication or a combination of the two. Oral communication includes speech, speechreading and the use of residual hearing. Manual communication involves signs and fingerspelling. Total Communication, as a method of instruction, is a combination of the oral method plus signs and fingerspelling.

Individuals with hearing loss, including those who are deaf, now have many helpful devices available to them. Text telephones (known as TTs, TTYs, orTDDs) enable persons to type phone messages over the telephone network. The Telecommunications Relay Service (TRS), now required by law, makes it possible for TT users to communicate with virtually anyone (and vice versa) via telephone. The National Institute on Deafness and Other Communication Disorders Information Clearinghouse (telephone: 1-800-241-1044, voice; 1-800-241-1055, TT) makes available lists of TRS numbers by state.

♦ Resources ♦

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Schwartz, S. (Ed.). (1996). Choices in deafness: A parents' guide to communication options. Bethesda, MD: Woodbine House. (Telephone: 1-800-843-7323; (301) 897-3570.)

Shhh Journal. Published bimonthly by Self Help for Hard of Hearing People (SHHH). See "Organizations" for SHHH's address and telephone number.

♦ Organizations ♦

Alexander Graham Bell Association for the Deaf, Inc. 3417 Volta Place, NW Washington, DC 20007 (202) 337-5220 (Voice/IT) E-mail: agbell2@aol.com URL: http://www.agbell.org

American Society for Deaf Children 1820 Tribute Road, Suite A Sacramento, CA 95815 1-800-942-2723 (Voice/TT); (916) 641-6084 E-mail: asdc1@aol.com URL: http://www.deafchildren.org

American Speech-Language Hearing Association 10801 Rockville Pike Rockville, MD 20852 (301) 897-5700 (Voice/TT); 1-800-638-8255 (Helpline) E-mail: actioncenter@asha.org URL: http://www.asha.org

National Information Center on Deafness Gallaudet University 800 Florida Avenue N.E. Washington, DC 20002-3695 (202) 651-5051 (Voice); (202) 651-5052 (TT) E-mail: nicd.infotogo@gallaudet.edu URL: http://www.gallaudet.edu/~nicd

National Institute on Deafness and Other Communication Disorders Clearinghouse One Communication Avenue Bethesda, MD 20892-3456 1-800-241-1044 (Voice); 1-800-241-1055 (TT) E-mail: nidcdinfo@nidcd.nih.gov URL: http://www.nih.gov/nidcd/

Self Help for Hard of Hearing People (SHHH) 7910 Woodmont Avenue, Suite 1200 Bethesda, MD 20814 (301) 657-2248 (Voice); (301) 657-2249 (TT) E-mail: shhh.nancy@genie.com

FS3, February 1999

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STATISTICS ON DEAFNESS AND HEARING DISORDERS IN THE UNITED STATES

Compiled and researched by the National Institute on Deafness and Other Communication Disorders, National Institutes of Health as reported in the April 1989 National Strategic Research Plan

	More than 28 million Americans have a hearing loss; 80 percent of those affected
	have irreversible and permanent hearing damage.
	More than 1/3 of the U.S. population has a significant hearing impairment by age
	65.
	Approximately 2 million people are profoundly deaf.
	One of every 1000 infants is born totally deaf.
	At least 1 million children are deaf or have a communication disorder.
	One of every 22 infants has hearing problems.
	Genetic factors are known to cause over 50 percent of all cases of severe childhood
	deafness.
	The average age of diagnosis of hearing loss is close to age 3.
	Sensorineural damage (damage to the hair cells and cochlea caused by genetics or
	exposure to noise) is the largest, single form of hearing loss affecting 17 million
	Americans.
	At least 15 percent of the U.S. population is affected by tinnitus. Persons over age 50
	are twice as likely to have tinnitus.
	Otitis media (ear infection) is the most common cause of temporary hearing loss
	(predominantly in infants and young children with 70 percent having otitis media
	by the age of 3). Otitis media accounted for 10 million visits to doctors' offices in
	1975.
	Presbycusis affects 1/3 of the U.S. population over age 65.
	Meniere's syndrome causes bilateral hearing loss in 5 to 20 percent of cases.
	The estimated cost of care per year for persons with hearing impairment is \$56 bil-
	lion (based on \$2,000 per patient annual costs for special education, speech therapy,
	hearing aids, physician and specialist fees, and other expenses).
	For More Information, contact

For More Information, contact:

NATIONAL ASSOCIATION OF THE DEAF Public Information Office • 814 Thayer Avenue • Silver Spring, MD • 20910-4500 (301) 587-1788 Voice • (301) 587-1789 TTY • (301) 587-1791 FAX

IS IT TRUE? DEAF AWARENESS FACT OR FICTION

(Answers will be found on the next page.)

Is it true that.... 1. all deaf people read Braille? YN a number of educational options are available for deaf children? Y N all people who have a hearing loss benefit from using a hearing aid? N 4. some deaf people can not talk? YN 5. speechreading (lipreading) is easy and all deaf people are good speechreaders? Y N 6. deaf people are unable to live independently? N Y 7. it is not safe to have deaf drivers on the road? YN 8. deaf individuals can not participate in sports? YN 9. deaf people can hold professional level jobs and/or own businesses? Y N 10. many deaf people enjoy music? Y N YN 11. deaf people can not use the telephone? 12. people who are deaf can not enjoy television, movies or plays? N 13. sign language is universal? N 14. it is no longer correct to use the terms "deaf-mute" or "deaf and dumb"? N



Is It True? Answers

- No. People who are blind read Braille. Deaf people who have visual problems may also read Braille.
- 2. Yes. There are some educational options for deaf children. They can attend public or private schools for the deaf with both residential or day programs or they may be enrolled in regular classes with support services; in self-contained classes within a regular school facility; or be mainstreamed for some classes with normal hearing students.
- No. The effectiveness of a hearing aid depends on many factors, some of which are: the degree of hearing loss, the type of loss, the tolerance of sound amplification, and auditory training.
- 4. No. People who are deaf can talk, but some choose not to use their voice because they can not hear it to regulate clarity, pronunciation, tone, and loudness.
- No. Speechreading is a difficult skill to master. Success depends on many factors, such as:
- A. The speaker: way words are formed, vocabulary level, topic of discussion, pace of the conversation, sounds that can not be speechread, sounds that look the same,
- B. The listener: educational level, ability to concentrate, knowledge of the topic, visual acuity,
 - C. The environment: lighting and background
- No. As with hearing people, a good education makes it possible for deaf individucals to be independent and contributing members of society.
- No. Deaf drivers are as safe as any other drivers.
- No. Being deaf does not limit participation in sports. Professional and amateur deaf athletes are involved in a wide variety of competitive sports in both the hearing and deaf communities.
- Yes. There are deaf lawyers, doctors, dentists, engineers, artists, scientists, business owners, pilots,

- politicians, and other deaf individuals who have succeeded in various career fields of employment.
- 10. Yes. Some deaf people play musical instruments and many enjoy dancing, sign singing and watching captioned music videos. Members of some deaf dance troupes relay upon sound amplification or musical vibrations to follow the music.
- 11. No. A deaf person can use the telephone if he/she has a telecommunication device (TTY), also known as a TDD. The TTY must be used with another person who has one. The messages are printed on a screen and/or paper. To communicate with someone who does not have a TTY, the caller can use a relay system. A communication assistant relays the message either by voice or TTY. Every state has a relay service.
- 12. No. People who are deaf do enjoy television, movies and plays. Many television programs and videotaped movies are closed captioned. With the use of a decoder, either an external unit or one built in, deaf viewers can read the dialogue at the bottom of the screen. Often, sign language interpreters are present during some performances of plays. Deaf people write plays and also perform in their own or other writer's works.
- 13. No. Sign language is not universal. Sign languages are unique to the peoples of a country much the same as the spoken language is characteristic of a country's people and culture. The number of sign languages parallel the variety of spoken languages. Even within a country, the national sign language has dialects.
- 14. Yes. These terms are considered insulting and out of date. The generally accepted terminology is people who are deaf, hard of hearing. The term "hearing impaired" is falling out of favor and its use is not encouraged.

For More Information, contact:



Public Information Office • 814 Thayer Avenue • Silver Spring, MD • 20910-4500 (301) 587-1788 Voice • (301) 587-1789 TTY • (301) 587-1791 FAX



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American Sign Language Fairy Tales, (Videotape) Interlingual Images, 1986.

This and many more videotapes may be purchased from the National Association of the Deaf Publications Department or they may be found in your public library.

For a catalog or for information about purchasing this or other titles, contact:

National Association of the Deaf Publications Department 814 Thayer Avenue Silver Spring, Maryland 20910-4500 301-587-6282 V; 301-587-6283 TTY; 301-587-1791 Fax

RESOURCE ORGANIZATIONS

State/National Resource Organizations

National Association for the Deaf 814 Thayer Avenue Silver Spring, MD 20910-4500 301-587-6282 TTY- 301-587-6283

Helen Keller National Center for Deaf-Blind 111 Middle Neck Road Sandy Point, NY 11050 516-944-8900 Gallaudet University 800 Florida Avenue, NE Washington, DC 20002 202-651-5000

Alexander Graham Bell Association for the Deaf 3417 Volta Place, NW Washington, DC 20007 202-337-5220 National Institute on Deafness and Other Communication Disorders Information Clearinghouse P.O. Box 37777 Washington, DC 20002 202-651-5373

Maryland Relay Service 1-800-735-2258

Local Organizations

Hearing & Speech Agency of Metropolitan Baltimore 410-243-3800 TTY: 410-243-1275

Columbia School of the Deaf 410-465-9611